

## 4 | DIY FRIDAYS

## ROCK-PAPER-SCISSORS

**Here are two experiments to help you understand angular momentum, friction and what makes up a white light**

**CD - TOP**

**YOU NEED**

- Marble
- Old CD
- Color card disc
- Rubber Glue

**1**

Insert a marble in the CD's hole and stick it using a glue. Allow the glue to dry.

**2**

**TOP** **BOTTOM**

The top of the marble will provide the grip for spinning the CD. The CD will spin on the marble pivot. It's an ideal top - with a low centre of gravity and a large moment of inertia.

**3**

Stick the VIBGYOR-coloured card disc on the CD. On spinning the top, you will see only greyish-white.

**This demonstrates that white light is actually a compound of Primary colours.**

**Get Going Mug**

Mug, Matchbox, Thread, Pencil

**1** Tie a mug and a matchbox to the ends of a 1.5-metre long thread.

**2** Place the thread in such a way that the mug hangs one side of the pencil while you hold the matchbox on the other side. Now release the matchbox.

Leave matchbox in this position

**3** Something surprising happens. The mug does not fall and break. Instead, the matchbox rotates and the thread coils around the pencil a few times. This prevents the mug from falling.

Angular momentum spins the matchbox faster and faster around the pencil. The resultant friction between the thread and pencil prevents the mug from falling.

CONCEPT: TOY INVENTOR ARVIND GUPTA  
ILUSTRATIONS: CHINMAYEE SAMANT & RESHMA BARVE  
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**CURIO SPACE**

# How does a hand pump work?

The best way to learn the working of simple pump is to get hands-on and try this experiment. You can do it quite easily at home.

### Let's Build It

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  - Things needed: A glass of water, some ink, dropper, a firm upright piece of transparent tube or pipe.
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  - Add a few drops of coloured ink to the water in the glass.
  - Colour helps to observe the movement of water better.
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  - Lower the tube into the coloured glass of water.
  - Ensure a part of the tube is immersed in water and the other part is above the water level.
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  - Hold the top end of the tube between the middle finger and thumb.
  - Position your index finger over the mouth of the tube.
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  - Move the tube up & down quickly in the water cup.
  - As you move the tube up & down alternatively close & open the mouth of the tube with your index finger.
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  - Ensure your index finger completely seals the mouth of the tube when closing it.
  - As you move the tube up & down ensure that the lower part of the tube remains immersed in water.

### Let's Explore It

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  - In a while water rises up the tube & squirts out.
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  - Voila !! You have just made a very simple version of a pump.

### Science Behind the Scenes !!

- The jerky downward movement of the tube forces water to rise up into the tube.
- Closing the mouth of the tube when moving it up, helps the water stay on in the tube.
- The constant up & down movement, causes the water level to gradually rise up in the tube & finally squirt out. The same principle is at work in pumps.
- In traditional pumps the up & down movement of the pump handle, helps to create pressure difference.
- This causes the water to be sucked into the pump through the suction valve & moved out through the delivery valve.





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## PEN & PAPER

# WRITE AWAY

With tips galore available from various sources, all one needs is practice to acquire good handwriting

Priti Govindaraj ([www.pritis-ecademy.com](http://www.pritis-ecademy.com))

*"Handwriting enables civilization."*

- Toba Beta, Indonesian Writer

The word enable means "to make possible" or "activate". Civilization is the stage of human social development which is considered most advanced. It is interesting to note that writing played a crucial role in ancient civilizations. The Sumerian language is one of the earliest known written languages and the ancient Egyptian hieroglyphs.

glyphic script is well known even today. So we understand that handwriting skills were a part of growth and civilization.

Living as we do in a digital era today, it is easy to overlook the importance of good handwriting. Are we even aware that developing a good handwriting requires the integration of the visual, motor, sensory and perceptual systems, and it is a skill that needs to be practised and perfected? Even in this digital

era, schools depend on written work to assess a student's learning ability and knowledge acquired.

Handwritten communication continues to be a significant part of our daily life, education, and career and can be considered an enabler to achieve success in life.

Online courses to help you master this art are just a click away, so leverage the resources that are available to enable success in your life!

use the when it is clear to the reader who and that are used with singular nouns.  
on animal thing we are referring to.

(The writer runs Pritis-academy which offers online courses, e-learning videos and mobile apps to improve handwriting skills for all age groups.)